

Mathematics

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(Chapter 2)(Inverse Trigonometric Functions)

(Class XII)

(Exemplar Problems)

Objective Type Questions

Choose the correct answers from the given four options in the following (MCQ):

Question 32:

The value of $\cot \left(\cos^{-1} \frac{7}{25} \right)$ is

(A) $\frac{25}{24}$

(B) $\frac{25}{7}$

(C) $\frac{24}{25}$

(D) $\frac{7}{24}$

Answer 32:

(D) $\frac{7}{24}$

Solution:

To find: $\cot \left(\cos^{-1} \frac{7}{25} \right)$

Now, we have $\cot \left(\cos^{-1} \frac{7}{25} \right)$

$$\Rightarrow \cot \left(\cos^{-1} \frac{7}{25} \right) = \cot \left(\cot^{-1} \frac{7}{\sqrt{25^2 - 7^2}} \right) \quad \left[\because \cos^{-1} \frac{a}{b} = \cot^{-1} \frac{a}{\sqrt{b^2 - a^2}} \right]$$

$$= \cot \left(\cot^{-1} \frac{7}{\sqrt{625 - 49}} \right)$$

$$= \cot \left(\cot^{-1} \frac{7}{\sqrt{576}} \right)$$

$$\cot \left(\cot^{-1} \frac{7}{24} \right) = \frac{7}{24}$$



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$$\Rightarrow \cot \left(\cos^{-1} \frac{7}{25} \right) = \frac{7}{24}$$

Hence, the option (D) is correct.

